Docket: PH01-01-03

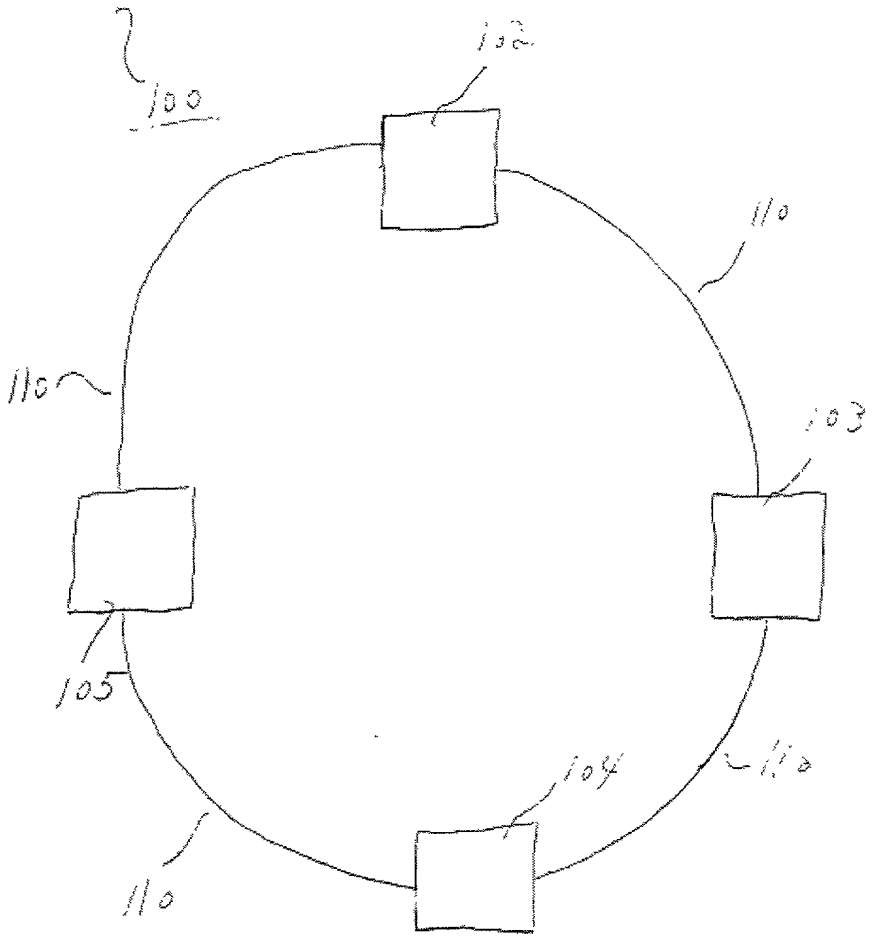

Fig. 1

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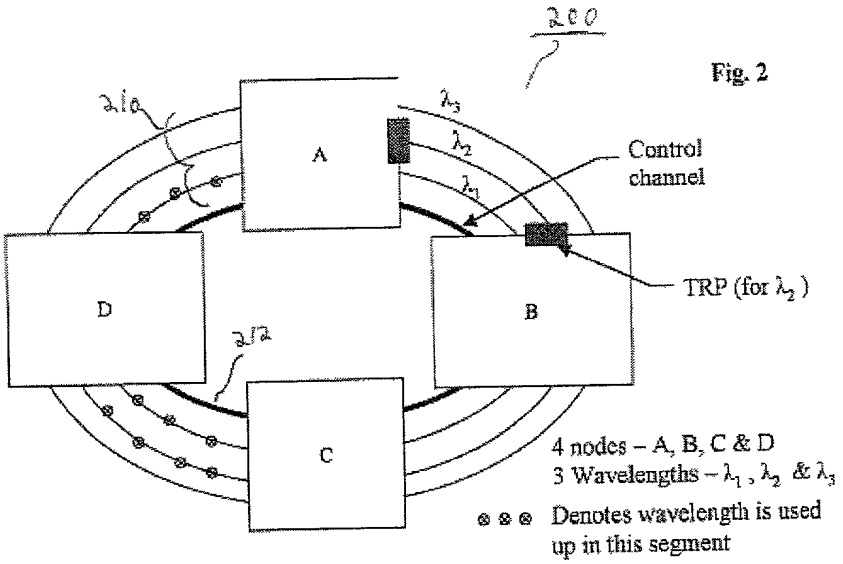

To setup lightpath between A & B

1. A-B is short side, A-D-C-B is long side.
2. In A-B segment all the three wavelengths are available.
3. λ_3 is used up in A-D and D-C. λ_2 is used up in D-C.
4. λ_3 is not used anywhere – use of λ_3 means use of new wavelength
5. Path Length: (A-B) = 1, (A-D-C-B) = 3.
6. Wavelength Utilization Rate (UR) =
   (No. of segments over which this wavelength is used) / (Total no. of segments)

   For λ_1, UR = 2/4 = 1/2. For λ_2, UR = 1/4. For λ_3, UR = 0.

7. Fragmentation (FR) = No. of contiguous segments in use + No. of contiguous segments not used

   For λ_1, FR = 1 (A-D-C) + 1 (C-B-A) = 2
   For λ_2, FR = 1 (D-C) + 1 (C-B-A-D) = 2. For λ_3, FR = 1 (A-D-C-B-A) = 1
   For the A-B lightpath if λ_1 is chosen, new FR =2, if λ_2 is chosen, new FR = 4
   if λ_3 is chosen, new FR = 2
   Hence increase in fragmentation is λ_1 – 0, λ_2 - 2, λ_3 - 1.
   We prefer λ_1 which has the least increase in fragmentation.

8. TRP savings
   In A-B, TRPs are available only in λ_2. Use of λ_2 results in TRP savings.